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(71) Applicants:
- **Qingdao Haier Washing Machine Co., Ltd.**
  Qingdao, Shandong 266101 (CN)
- **Haier Smart Home Co., Ltd.**
  Qingdao, Shandong 266101 (CN)

(72) Inventors:
- **MI, Delong**
  Qingdao, Shandong 266101 (CN)
- **BING, Jindong**
  Qingdao, Shandong 266101 (CN)
- **YANG, Kun**
  Qingdao, Shandong 266101 (CN)
- **XU, Qingguang**
  Qingdao, Shandong 266101 (CN)
- **ZHENG, Xiaoqiu**
  Qingdao, Shandong 266101 (CN)
- **SUN, Jichen**
  Qingdao, Shandong 266101 (CN)
- **FU, Chenglong**
  Qingdao, Shandong 266101 (CN)

(74) Representative: **Ipside**
7-9 Allée Haussmann
33300 Bordeaux Cedex (FR)

(54) **GAS CLOTHES DRYER**

(57) A gas-fired clothes dryer, where a mounting base (200) is disposed in a housing (100), a gas-fired heating device (300) is connected to a mounting frame (400), and the mounting frame (400) is detachably connected to the mounting base (200); and the housing (100) is provided with a maintenance port (102), the maintenance port (102) directly faces the mounting base (200), and the maintenance port (102) is arranged to allow the gas-fired heating device (300) and the mounting frame (400) to pass through. Through the above arrangement, for replacing a burner (301), the mounting frame (400) is detached from the mounting base (200) through the maintenance port (102), and then the gas-fired heating device (300) and the mounting frame (400) are moved out of the housing (100) from the maintenance port (102), so as to replace the burner (301) on the gas-fired heating device (300), making the whole process convenient and fast, saving the maintenance time and reducing the maintenance cost.

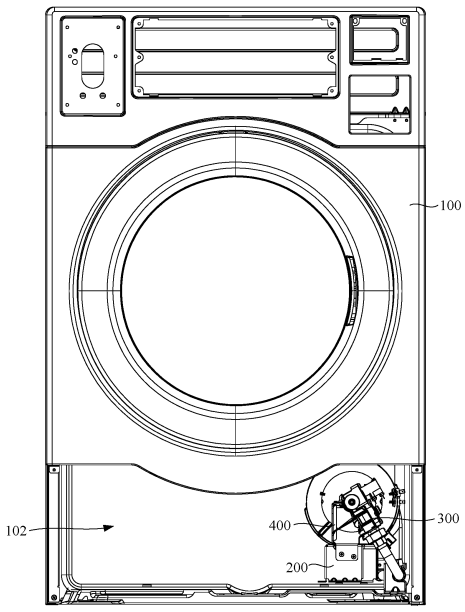

FIG. 1

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Description

[0001] This application claims priority to Chinese Patent Application No. 202210182644.1, filed with the China National Intellectual Property Administration on February 25, 2022, and entitled "GAS-FIRED CLOTHES DRYER", the entire content of which is incorporated in this application by reference.

TECHNICAL FIELD

[0002] Embodiments of the present application belong to the field of clothes dryer technology and, in particular, to a gas-fired clothes dryer.

BACKGROUND

[0003] A gas-fired clothes dryer uses heat generated by the combustion of fuel gas to heat the air, and the heated dry hot air enters a clothes drying drum and contacts the wet clothes in the clothes drying drum, thereby drying the clothes.

[0004] In the related art, a gas-fired clothes dryer includes a casing, a clothes drying drum, a blower fan and a gas-fired heating device. An accommodating space is provided in the casing, and the clothes drying drum, the blower fan and the gas-fired heating device are all disposed in the accommodating space. The gas-fired heating device includes a burner, a combustion cylinder and an igniter, a spray nozzle of the burner and the igniter are both accommodated in the combustion cylinder. The fuel gas sprayed from the spray nozzle is ignited by the igniter, and heat generated by the combustion of the fuel gas heats the air in the combustion cylinder. Under the action of the blower fan, the heated air enters the clothes drying drum to dry the clothes in the clothes drying drum.

[0005] The fuel gas of the gas-fired clothes dryer may be natural gas or liquefied gas. The burners adapted to natural gas and liquefied gas are different in structure. When the gas-fired clothes dryer leaves factory, the burner mounted in the casing is adapted to natural gas, and if the user wants to use liquefied gas, the burner needs to be replaced. For replacing the burner, it is necessary to open the casing and move the clothes drying drum out of the accommodating space before replacing the burner, and the process is complicated.

SUMMARY

[0006] The main purpose of embodiments of the present application is to provide a gas-fired clothes dryer, so as to solve the problem that the process of replacing a burner of the gas-fired clothes dryer in the related art is complicated.

[0007] In order to achieve the above purpose, embodiments of the present application provide a gas-fired clothes dryer including: a housing, a gas-fired heating device and a mounting frame, where the housing has an operating side surface, and the operating side surface is disposed toward a user, the operating side surface is provided with a maintenance port, and the maintenance port is arranged to allow the gas-fired heating device and the mounting frame to pass through; and a mounting base is disposed in the housing, the mounting base faces the maintenance port, the mounting frame is detachably connected to the mounting base, and the gas-fired heating device is connected to the mounting frame.

[0008] In a preferred technical solution of the above gas-fired clothes dryer, a supporting plate is provided on a top of the mounting base, and the mounting base also has a connecting sidewall, the connecting sidewall is located below the supporting plate, the connecting sidewall is adjacent to the supporting plate, and the connecting sidewall is disposed toward the maintenance port; and the mounting frame includes a first connecting plate and a second connecting plate, the first connecting plate is parallel to the supporting plate, the second connecting plate is disposed at a bottom of the first connecting plate, the first connecting plate is attached to the supporting plate, the second connecting plate is attached to the connecting sidewall, and a fastening bolt is connected with the connecting sidewall after penetrating the second connecting plate.

[0009] In a preferred technical solution of the above gas-fired clothes dryer, a first clamping plate is disposed at the bottom of the first connecting plate, the first clamping plate is perpendicular to the first connecting plate, a notch is provided at an end of the first clamping plate away from the second connecting plate, and the notch extends to the first connecting plate; and the supporting plate is provided with a first mounting hole, the first mounting hole is arranged to allow the first clamping plate to pass through, and the supporting plate is clamped in the notch.

[0010] In a preferred technical solution of the above gas-fired clothes dryer, the first mounting hole includes a first hole section, a second hole section and a third hole section, the first hole section, the second hole section and the third hole section are connected with each other, and distances between the first hole section and the second connecting plate, between the second hole section and the second connecting plate, and between the third hole section and the second connecting plate increase in sequence; and in a direction perpendicular to the first clamping plate, a width of the third hole section is equal to a thickness of the first clamping plate, a width of the first hole section is greater than the width of the third hole section, and a width of the second hole section decreases in a direction from the first hole section to the third hole section.

[0011] In a preferred technical solution of the above gas-fired clothes dryer, a width of the notch in a direction perpendicular to the first connecting plate is equal to a thickness of the supporting plate.

[0012] In a preferred technical solution of the above gas-fired clothes dryer, a second clamping plate is dis-

posed at the bottom of the first connecting plate, the second clamping plate has a fixed end and a movable end, the fixed end is connected with the first connecting plate, and the movable end extends away from the second connecting plate, and there is an accommodating gap between the second clamping plate and the first connecting plate; and the supporting plate is provided with a second mounting hole, the second mounting hole is arranged to allow the second clamping plate to pass through, and the supporting plate is clamped in the accommodating gap.

[0013] In a preferred technical solution of the above gas-fired clothes dryer, the first connecting plate is concave downward to form a mounting groove, and a rabbet of the mounting groove forms the second mounting hole, and the second clamping plate is capable of being accommodated in the mounting groove, and a groove wall of the mounting groove away from the second connecting plate is provided with a third mounting hole, and the third mounting hole is arranged to allow the second clamping plate to pass through.

[0014] In a preferred technical solution of the above gas-fired clothes dryer, a maintenance cover plate is disposed on the operating side surface, and the maintenance cover plate is detachably connected with the housing, and is arranged to close the maintenance port.

[0015] In a preferred technical solution of the above gas-fired clothes dryer, the gas-fired heating device includes a burner, and the burner is detachably connected to the mounting frame.

[0016] In a preferred technical solution of the above gas-fired clothes dryer, the burner has a first mounting plate and a second mounting plate, and a plane where the first mounting plate is located and a plane where the second mounting plate is located are coplanar; and the mounting frame further includes a third connecting plate and a fourth connecting plate, the third connecting plate and the fourth connecting plate are parallel and spaced apart from one another on a top of the first connecting plate, and are perpendicular to the first connecting plate, and a top end of the third connecting plate is bent toward the fourth connecting plate to form a first bent plate, and the first mounting plate is detachably connected with the first bent plate; and a top end of the fourth connecting plate is bent toward the third connecting plate to form a second bent plate, and the second mounting plate is detachably connected with the second bent plate.

[0017] It can be understood by those skilled in the art that in the gas-fired clothes dryer in the embodiments of the present application, the mounting base is disposed in the housing, the gas-fired heating device is connected to the mounting frame, and the mounting frame is detachably connected to the mounting base; and the housing is provided with the maintenance port, and the maintenance port directly faces the mounting base and is arranged to allow the gas-fired heating device and the mounting frame to pass through. Through the above arrangement, for replacing the burner, the mounting frame is detached from the mounting base through the maintenance port, and then the gas-fired heating device and the mounting frame are moved out of the housing from the maintenance port, so as to replace the burner on the gas-fired heating device, making the whole process convenient and fast, saving the maintenance time and reducing the maintenance cost.

BRIEF DESCRIPTION OF DRAWINGS

[0018] Preferred implementations of a gas-fired clothes dryer according to embodiments of the present application are described with reference to the drawings in the following. The drawings are:

FIG. 1 is a first schematic structural diagram of a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 2 is a second schematic structural diagram of a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 3 is a schematic structural diagram of a mounting base in a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 4 is a first schematic structural diagram of a mounting base, a mounting frame and a gas-fired heating device in a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 5 is a first schematic structural diagram of a mounting frame in a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 6 is a second schematic structural diagram of a mounting frame in a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 7 is a second schematic structural diagram of a mounting base, a mounting frame and a gas-fired heating device in a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 8 is a third schematic structural diagram of a mounting base, a mounting frame and a gas-fired heating device in a gas-fired clothes dryer according to an embodiment of the present application.

FIG. 9 is a third schematic structural diagram of a mounting frame in a gas-fired clothes dryer according to an embodiment of the present application.

[0019] In the drawings:

100, housing; 200, mounting base;
300, gas-fired heating device; 400, mounting frame;
101, operating side surface; 102, maintenance port;
103, maintenance cover plate; 201, supporting plate;
202, connecting sidewall; 203, first mounting hole;
204, first hole section; 205, second hole section;
206, third hole section; 207, mounting groove;
208, third mounting hole; 301, burner;
302, first mounting plate; 303, second mounting plate;

304, gas valve; 305, inlet pipe;
306, inlet valve; 307, igniter;
308, combustion cylinder; 401, first connecting plate;
402, second connecting plate; 403, first clamping plate;
404, notch; 405, second clamping plate;
406, fixed end; 407, movable end;
408, accommodating gap; 409, third connecting plate;
410, fourth connecting plate; 411, first bent plate;
412, second bent plate; 413, opening for gripping.

DETAILED DESCRIPTION

[0020] First, it should be understood by those skilled in the art that these implementations are only used to explain the technical principles of embodiments of the present application, and are not intended to limit the protection scope of the embodiments of the present application. Those skilled in the art may make adjustment according to their needs, so as to adapt to specific application scenarios.

[0021] Second, it is to be noted that in the description of embodiments of the present application, orientations or positional relationships indicated by the terms "inside", "outside", etc. are based on the orientations or positional relationships shown in the drawings, which is only for the convenience of description, and does not indicate or imply that the device or member must be of a specific orientation, be constructed and operate in a specific orientation, and therefore should not be understood as limiting the embodiments of the present application.

[0022] In addition, it is also to be noted that in the description of embodiments of the present application, unless otherwise expressly specified and defined, the terms "connection" and "connecting" should be understood in a broad sense. For example, "connection" may be a fixed connection, a detachable connection, or an integral connection; "connection" may be a mechanical connection or an electrical connection; "connection" may be a direct connection or an indirect connection through an intermediate medium; and "connection" may be an internal communication of two members. For those of ordinary skill in the art, the specific meanings of the above terms in embodiments of the present application may be understood according to the specific situation.

[0023] In order to make the purposes, technical solutions and advantages of embodiments of the present application clearer, the technical solutions in embodiments of the present application will be described clearly and comprehensively in combination with the drawings in the present application. Obviously, the described embodiments are merely some rather than all of embodiments of the present application. All other embodiments obtained by those of ordinary skill in the art based on embodiments of the present application without creative effort shall fall within the protection scope of the present application.

[0024] A gas-fired clothes dryer in the related art includes a casing, a clothes drying drum, a blower fan and a gas-fired heating device, an accommodating space is provided in the casing, and the clothes drying drum, the blower fan and the gas-fired heating device are all disposed in the accommodating space. The gas-fired heating device includes a gas valve, an inlet pipe, a burner, a combustion cylinder and an igniter, the gas valve is provided with an inlet and an outlet, the inlet is connected with the inlet pipe, and the outlet is connected with the burner. The burner is provided with a combustion-supporting air inlet and a spray nozzle, the combustion-supporting air inlet is arranged to enable the combustion-supporting air to enter the burner, and the combustion-supporting air and the fuel gas are mixed in the burner and then sprayed from the spray nozzle. Both the spray nozzle and the igniter are accommodated in the combustion cylinder, and the fuel gas sprayed from the spray nozzle is ignited by the igniter, heat generated by the combustion of the fuel gas heats the air in the combustion cylinder, and under the action of the blower fan, the heated air enters the clothes drying drum to dry the clothes in the clothes drying drum.

[0025] The fuel gas used in the gas-fired clothes dryer may be natural gas or liquefied gas, and the amount of combustion-supporting air required when natural gas and liquefied gas are combusted is quite different. When the same volume of natural gas and liquefied gas are combusted, the amount of combustion-supporting air required by liquefied gas is about three times the amount of combustion-supporting air required by natural gas, so the burners adapted to natural gas and liquefied gas are different in structure, and the combustion-supporting air inlet on the burner adapted to liquefied gas is larger than that on the burner adapted to natural gas.

[0026] When the gas-fired clothes dryer leaves factory, the burner mounted in the casing is adapted to natural gas, and if the user wants to use liquefied gas, the burner needs to be replaced. For replacing the burner, it is necessary to open the casing and move the clothes drying drum out of the accommodating space before replacing the burner, and the process is cumbersome.

[0027] This embodiment provides a gas-fired clothes dryer, where a mounting base is disposed in a housing, a gas-fired heating device is connected to a mounting frame, the mounting frame is detachably connected to the mounting base, and a maintenance port is provided on the housing, and the maintenance port directly faces the mounting base. For replacing a burner, the mounting frame is detached from the mounting base through the maintenance port, and then the gas-fired heating device and the mounting frame are moved out of the housing from the maintenance port to replace the burner on the gas-fired heating device, and the whole process is convenient and fast.

[0028] The principles and features of embodiments of the present application are described below with reference to the drawings. The cited examples are only used

to explain the embodiments of the present application, and are not used to limit the scope of the embodiments of the present application.

[0029] As shown in FIG. 1, a gas-fired clothes dryer provided in embodiments of the present application includes a housing 100, a gas-fired heating device 300 and a mounting frame 400. An accommodating space is provided in the housing 100, and a mounting base 200 is disposed in the accommodating space. As shown in FIG. 2, the housing 100 has an operating side surface 101. The operating side surface 101 is disposed toward the user. A maintenance port 102 (as shown in FIG. 1) is provided on the operating side surface 101, and the maintenance port 102 is connected with the accommodation space and directly faces the mounting base 200.

[0030] With continued reference to FIG. 1, the gas-fired heating device 300 is connected to the mounting frame 400. The gas-fired heating device 300 includes a burner 301, and the burner 301 is detachably connected to the mounting frame 400. The mounting frame 400 is detachably connected to the mounting base 200. The maintenance port 102 also directly faces the gas-fired heating device 300 and the mounting frame 400, and the gas-fired heating device 300 and the mounting frame 400 can pass through the maintenance port 102.

[0031] When the burner 301 needs to be replaced, the mounting frame 400 is detached from the mounting base 200 through the maintenance port 102, then the gas-fired heating device 300 and the mounting frame 400 are moved out of the housing 100 from the maintenance port 102. The burner 301 is detached from the mounting frame 400, and the burner 301 to be used is mounted on the mounting frame 400. Then the mounting frame 400 and the gas-fired heating device 300 are moved from the maintenance port 102 into the accommodating space, and the mounting frame 400 is assembled on the mounting base 200 through the maintenance port 102.

[0032] In the process of replacing the burner 301, there is no need to open a casing and remove a clothes drying drum, the whole process is convenient and fast, the maintenance time is saved and the maintenance cost is reduced.

[0033] The mounting base 200 described above may be disposed on an inner sidewall of the housing 100 or at a bottom of the accommodating space. With continued reference to FIG. 1, in the implementation that the mounting base 200 is disposed at the bottom of the accommodating space, a fixing plate may be disposed at a bottom of the mounting base 200. The fixing plate may be parallel to the horizontal plane, and a fixing hole may be disposed on the fixing plate, and a fastening bolt is connected with the housing 100 after passing through the fixing hole, so that the base may be detachably connected to the housing 100. Of course, the mounting base 200 may also be welded on the housing 100. As shown in FIG. 3 and FIG.4, a supporting plate 201 may be provided on a top of the mounting base 200. The mounting base 200 is also provided with a connecting sidewall 202. The connecting sidewall 202 is located below the supporting plate 201, and the connecting sidewall 202 is adjacent to the supporting plate 201, and the connecting sidewall 202 is disposed toward the maintenance port 102. As shown in FIG. 5 and FIG. 6, the mounting frame 400 may include a first connecting plate 401 and a second connecting plate 402. The first connecting plate 401 is parallel to the supporting plate 201, and the second connecting plate 402 is disposed at a bottom of the first connecting plate 401. As shown in FIG. 7 and FIG. 8, the first connecting plate 401 is attached to the supporting plate 201, and the second connecting plate 402 is attached to the connecting sidewall 202, and the fastening bolt is connected with the connecting sidewall 202 after penetrating the second connecting plate 402.

[0034] For replacing the burner 301, the fastening bolt is loosened, so that the second connecting plate 402 is detached from the connecting sidewall 202. Then the mounting frame 400 is held by hand and moved toward the maintenance port 102 to detach the mounting frame 400 from the mounting base 200 and move the mounting frame 400 out of the maintenance port 102. Since the gas-fired heating device 300 is connected to the mounting frame 400, the gas-fired heating device 300 is moved out of the maintenance port 102 together with the mounting frame 400, so as to facilitate the replacement of the burner 301 by maintenance personnel. After the replacement is finished, the mounting frame 400 is mounted on the mounting base 200 from the maintenance port 102.

[0035] In the implementation that the mounting base 200 is disposed on the inner sidewall of the housing 100, the mounting base 200 may have a second sidewall and a third sidewall. The second sidewall is away from the inner sidewall of the housing 100 where the mounting base 200 is located, the third sidewall is adjacent to the second sidewall, and the third sidewall faces the maintenance port 102. The mounting frame 400 may include a first connecting plate 401 and a second connecting plate 402. The first connecting plate 401 is adjacent to the second connecting plate 402, the first connecting plate 401 is attached to the second sidewall, and the second connecting plate 402 is attached to the third sidewall, and the fastening bolt is connected with the third sidewall after penetrating the second connecting plate 402.

[0036] With continued reference to FIG. 6, in the implementation that the mounting base 200 is disposed at the bottom of the accommodating space, a first clamping plate 403 may also be provided at the bottom of the first connecting plate 401. The first clamping plate 403 is perpendicular to the first connecting plate 401, and a notch 404 is provided at an end of the first clamping plate 403 away from the second connecting plate 402 (as shown in FIG. 9), and a top end of the notch 404 extends to the bottom of the first connecting plate 401. With continued reference to FIG. 3, the supporting plate 201 is provided with a first mounting hole 203, the first mounting hole 203 is arranged to allow the first clamping plate 403 to pass through, and the supporting plate 201 is

clamped in the notch 404 (as shown in FIG. 4).

[0037] A width of the notch 404 described above in a direction perpendicular to the first connecting plate 401 is equal to a thickness of the supporting plate 201, so the supporting plate 201 may be just clamped in the notch 404, so that after the supporting plate 201 is clamped in the notch 404, it is not easy for a shake to occur between the first connecting plate 401 and the supporting plate 201, thereby making the connection between the mounting frame 400 and the mounting base 200 more stable.

[0038] For assembling the mounting frame 400 and the mounting base 200, the first clamping plate 403 is first moved above the first mounting hole 203, and then the mounting frame 400 is moved downward, so that the first clamping plate 403 is inserted into the first mounting hole 203 from top to bottom. After that, the mounting frame 400 is moved away from the maintenance port 102, so that the supporting plate 201 is clamped in the notch 404, thereby realizing the connection between the first connecting plate 401 and the supporting plate 201 and making the connection between the mounting frame 400 and the mounting base 200 more stable.

[0039] For detaching the mounting frame 400 from the mounting base 200, the mounting frame 400 is moved toward the maintenance port 102 to detach the supporting plate 201 from the notch 404, and then the mounting frame 400 is moved upward to detach the first clamping plate 403 from the first mounting hole 203, thereby detaching the mounting frame 400 from the mounting base 200, which is convenient and fast.

[0040] With continued reference to FIG. 3, further, the first mounting hole 203 may include a first hole section 204, a second hole section 205 and a third hole section 206. The first hole section 204, the second hole section 205 and the third hole section 206 are connected with each other, and distances between the first hole section 204 and the second connecting plate 402, between the second hole section 205 and the second connecting plate 402, and between the third hole section 206 and the second connecting plate 402 increase in sequence. In a direction perpendicular to the first clamping plate 403, a width of the third hole section 206 is equal to a thickness of the first clamping plate 403 so as to clamp the first clamping plate 403 in the third hole section 206. A width of the first hole section 204 is greater than a width of the third hole section 206, that is, the width of the first hole section 204 is greater than the thickness of the first clamping plate 403, and thus the first clamping plate 403 may be inserted into the first hole section 204 more easily. A width of the second hole section 205 decreases in a direction from the first hole section 204 to the third hole section 206, and a sidewall of the second hole section 205 may guide the first clamping plate 403, so that the first clamping plate 403 may move into the third hole section 206 along the sidewall of the second hole section 205 after be inserted into the first hole section 204, which makes the assembly of the mounting frame 400 and the mounting base 200 more convenient and fast.

[0041] With continued reference to FIG. 6, in the implementation that the mounting base 200 is disposed at the bottom of the accommodation space, a second clamping plate 405 may also be provided at the bottom of the first connecting plate 401. The second clamping plate 405 has a fixed end 406 and a movable end 407. The fixed end 406 is connected with the first connecting plate 401, the movable end 407 extends away from the second connecting plate 402, and there is an accommodating gap 408 between the second clamping plate 405 and the first connecting plate 401. The supporting plate 201 is provided with a second mounting hole, the second mounting hole is arranged to allow the second clamping plate 405 to pass through, and the supporting plate 201 is clamped in the accommodating gap 408.

[0042] For assembling the mounting frame 400 and the mounting base 200, the second clamping plate 405 is first moved above the second mounting hole, and then the mounting frame 400 is moved downward, so that the second clamping plate 405 is inserted into the second mounting hole from top to bottom. After that, the mounting frame 400 is moved toward a direction away from the maintenance port 102, so that the supporting plate 201 is clamped in the accommodating gap 408 (as shown in FIG. 4), thereby realizing the connection between the first connecting plate 401 and the supporting plate 201 and making the connection between the mounting frame 400 and the mounting base 200 more stable.

[0043] For detaching the mounting frame 400 from the mounting base 200, the mounting frame 400 is moved toward the maintenance port 102 to move the supporting plate 201 out of the accommodating gap 408, and then the mounting frame 400 is moved upward to move the second clamping plate 405 out of the second mounting hole, so as to detach the mounting frame 400 from the mounting base 200, which is convenient and fast.

[0044] With continued reference to FIG. 3, further, part of the first connecting plate 401 is concave downward to form a mounting groove 207, and a rabbet of the mounting groove 207 forms a second mounting hole. The second clamping plate 405 may be accommodated in the mounting groove 207, and a groove wall of the mounting groove 207 away from the second connecting plate 402 is provided with a third mounting hole 208. The third mounting hole 208 is located below the first connecting plate 401, a top end of the third mounting hole 208 may extend to the bottom of the first connecting plate 401, and the third mounting hole 208 is arranged to allow the second clamping plate 405 to pass through.

[0045] With continued reference to FIG. 6 and FIG. 9, the second clamping plate 405 described above may extend in a wave shape, and the second clamping plate 405 may have a wave trough and a wave peak. The second clamping plate 405 at the wave peak may abut against a bottom of the supporting plate 201 to reduce a contact area between the second clamping plate 405 and the supporting plate 201, thereby reducing the friction between the second clamping plate 405 and the support-

ing plate 201, so that for mounting/detaching the mounting frame 400 on/from the mounting base 200, less external force is needed, and it is easier to assemble the mounting frame 400 and mounting base 200.

[0046] With continued reference to FIG. 2, in some embodiments, a maintenance cover plate 103 may be disposed on the operating side surface 101. The maintenance cover plate 103 is arranged to close the maintenance port 102, and the maintenance cover plate 103 is detachably connected with the housing 100. For example, the maintenance cover plate 103 may be connected with the housing 100 by a fastening bolt.

[0047] When the burner 301 needs to be replaced, the maintenance cover plate 103 is opened to expose the maintenance port 102, and then the mounting frame 400 is detached from the mounting base 200 through the maintenance port 102, and the burner 301 is replaced.

[0048] With continued reference to FIG. 8, in some embodiments, the burner 301 has a first mounting plate 302 and a second mounting plate 303, and a plane where the first mounting plate 302 is located and a plane where the second mounting plate 303 is located are coplanar. With continued reference to FIG. 5, the mounting frame 400 further includes a third connecting plate 409 and a fourth connecting plate 410. The third connecting plate 409 and the fourth connecting plate 410 are parallel and spaced apart from one another on a top of the first connecting plate 401, and are both perpendicular to the first connecting plate 401. A top end of the third connecting plate 409 is bent toward the fourth connecting plate 410 to form a first bent plate 411, and the first mounting plate 302 is detachably connected with the first bent plate 411. For example, the first mounting plate 302 and the first bent plate 411 may be connected by a fastening bolt. A top end of the fourth connecting plate 410 is bent toward the third connecting plate 409 to form a second bent plate 412, and the second mounting plate 303 is detachably connected with the second bent plate 412. For example, the second mounting plate 303 and the second bent plate 412 may be connected by a fastening bolt.

[0049] Further, the third connecting plate 409 and/or the fourth connecting plate 410 may be provided with a gripping portion, and the gripping portion is arranged to be gripped by a hand of the maintenance personnel. For example, the gripping portion may include an opening for gripping 413 or a handle for gripping, and the handle for gripping may be disposed outside the third connecting plate 409 and/or the fourth connecting plate 410. With continued reference to FIG. 4 to FIG. 7, the opening for gripping 413 may be provided on the third connecting plate 409 and/or the fourth connecting plate 410. For detaching the mounting frame 400, the fingers of the maintenance personnel are inserted into the opening for gripping 413 and pull the mounting frame 400 toward the maintenance port 102, so that the mounting frame 400 may be detached from the mounting base 200 more easily. For assembling the mounting frame 400 and the mounting base 200, the fingers of the maintenance personnel are inserted into the opening for gripping 413 and push the mounting frame 400 away from the maintenance port 102, so that it is easy to assemble the mounting frame 400 and the mounting base 200.

[0050] With continued reference to FIG. 7, the gas-fired heating device 300 may further include a gas valve 304, an inlet pipe 305, an igniter 307 and a combustion cylinder 308. The gas valve 304 is provided with an inlet and an outlet, the inlet is connected with the inlet pipe 305, and the outlet is connected with the burner 301. The inlet pipe 305 may be provided with an inlet valve 306, and the fuel gas enters the gas valve 304 from the inlet pipe 305, and enters the burner 301 from the gas valve 304. The burner 301 has a spray nozzle, and the fuel gas is sprayed from the spray nozzle. The igniter 307 is disposed near the spray nozzle, and both the igniter 307 and the spray nozzle are accommodated in the combustion cylinder 308. The igniter 307 is arranged to ignite the fuel gas sprayed from the spray nozzle, and heat generated by the combustion of the fuel gas heats the air in the combustion cylinder 308.

[0051] In addition to the detachable connection between the burner 301 and the mounting frame 400, the gas valve 304, the igniter 307 and the combustion cylinder 308 may all be detachably connected with the mounting frame 400, and when the gas valve 304, the igniter 307 or the combustion cylinder 308 is damaged, it is convenient to replace the damaged part.

[0052] To sum up, in the gas-fired clothes dryer according to the embodiments of the present application, the mounting base 200 is disposed in the housing 100, the gas-fired heating device 300 is connected to the mounting frame 400, and the mounting frame 400 is detachably connected to the mounting base 200. In addition, the housing 100 is provided with a maintenance port 102, the maintenance port 102 directly faces the mounting base 200, and the maintenance port 102 is arranged to allow the gas-fired heating device 300 and the mounting frame 400 to pass through. Through the above arrangement, for replacing the burner 301, the mounting frame 400 is detached from the mounting base 200 through the maintenance port 102, and then the gas-fired heating device 300 and the mounting frame 400 are moved out of the housing 100 from the maintenance port 102 to replace the burner 301 on the gas-fired heating device 300, making the whole process convenient and fast, saving the maintenance time and reducing the maintenance cost.

[0053] Finally, it should be noted that the above embodiments are only used to illustrate the technical solutions of the present application, but not to limit them. Although the present application has been illustrated in detail with reference to the aforementioned embodiments, it should be understood by those ordinarily skilled in the art that they may still make modifications to the technical solutions recorded in the aforementioned embodiments, or make equivalent substitutions to some or all of the tech-

nical features therein. However, these modifications or substitutions do not make the essence of corresponding technical solutions deviate from the scope of the technical solutions of the embodiments of the present application.

Claims

1. A gas-fired clothes dryer, comprising: a housing, a gas-fired heating device and a mounting frame, wherein the housing has an operating side surface, the operating side surface is disposed toward a user, the operating side surface is provided with a maintenance port, and the maintenance port is arranged to allow the gas-fired heating device and the mounting frame to pass through; and
a mounting base is disposed in the housing, the mounting base directly faces the maintenance port, the mounting frame is detachably connected to the mounting base, and the gas-fired heating device is connected to the mounting frame.

2. The gas-fired clothes dryer according to claim 1, wherein a supporting plate is provided on a top of the mounting base, and the mounting base also has a connecting sidewall, the connecting sidewall is located below the supporting plate, the connecting sidewall is adjacent to the supporting plate, and the connecting sidewall is disposed toward the maintenance port; and
the mounting frame comprises a first connecting plate and a second connecting plate, the first connecting plate is parallel to the supporting plate, the second connecting plate is disposed at a bottom of the first connecting plate, the first connecting plate is attached to the supporting plate, the second connecting plate is attached to the connecting sidewall, and a fastening bolt is connected with the connecting sidewall after penetrating the second connecting plate.

3. The gas-fired clothes dryer according to claim 2, wherein a first clamping plate is disposed at the bottom of the first connecting plate, the first clamping plate is perpendicular to the first connecting plate, and a notch is provided at an end of the first clamping plate away from the second connecting plate, and the notch extends to the first connecting plate; and
the supporting plate is provided with a first mounting hole, the first mounting hole is arranged to allow the first clamping plate to pass through, and the supporting plate is clamped in the notch.

4. The gas-fired clothes dryer according to claim 3, wherein the first mounting hole comprises a first hole section, a second hole section and a third hole section, the first hole section, the second hole section and the third hole section are connected with each other, and distances between the first hole section and the second connecting plate, between the second hole section and the second connecting plate, and between the third hole section and the second connecting plate increase in sequence; and
in a direction perpendicular to the first clamping plate, a width of the third hole section is equal to a thickness of the first clamping plate, a width of the first hole section is greater than the width of the third hole section, and a width of the second hole section decreases in a direction from the first hole section to the third hole section.

5. The gas-fired clothes dryer according to claim 3 or 4, wherein a width of the notch in a direction perpendicular to the first connecting plate is equal to a thickness of the supporting plate.

6. The gas-fired clothes dryer according to claim 2, wherein a second clamping plate is disposed at the bottom of the first connecting plate, the second clamping plate has a fixed end and a movable end, the fixed end is connected with the first connecting plate, and the movable end extends away from the second connecting plate, and there is an accommodating gap between the second clamping plate and the first connecting plate; and
the supporting plate is provided with a second mounting hole, the second mounting hole is arranged to allow the second clamping plate to pass through, and the supporting plate is clamped in the accommodating gap.

7. The gas-fired clothes dryer according to claim 6, wherein the first connecting plate is concave downward to form a mounting groove, and a rabbet of the mounting groove forms the second mounting hole, and the second clamping plate is capable of being accommodated in the mounting groove, and a groove wall of the mounting groove away from the second connecting plate is provided with a third mounting hole, and the third mounting hole is arranged to allow the second clamping plate to pass through.

8. The gas-fired clothes dryer according to any one of claims 1 to 7, wherein a maintenance cover plate is disposed on the operating side surface, the maintenance cover plate is detachably connected with the housing, and the maintenance cover plate is arranged to close the maintenance port.

9. The gas-fired clothes dryer according to any one of claims 2 to 7, wherein the gas-fired heating device comprises a burner, and the burner is detachably connected to the mounting frame.

10. The gas-fired clothes dryer according to claim 9, wherein the burner has a first mounting plate and a second mounting plate, and a plane where the first mounting plate is located and a plane where the second mounting plate is located are coplanar; and the mounting frame further comprises a third connecting plate and a fourth connecting plate, the third connecting plate and the fourth connecting plate are parallel and spaced apart from one another on a top of the first connecting plate, and are perpendicular to the first connecting plate, and a top end of the third connecting plate is bent toward the fourth connecting plate to form a first bent plate, and the first mounting plate is detachably connected with the first bent plate; and a top end of the fourth connecting plate is bent toward the third connecting plate to form a second bent plate, and the second mounting plate is detachably connected with the second bent plate.

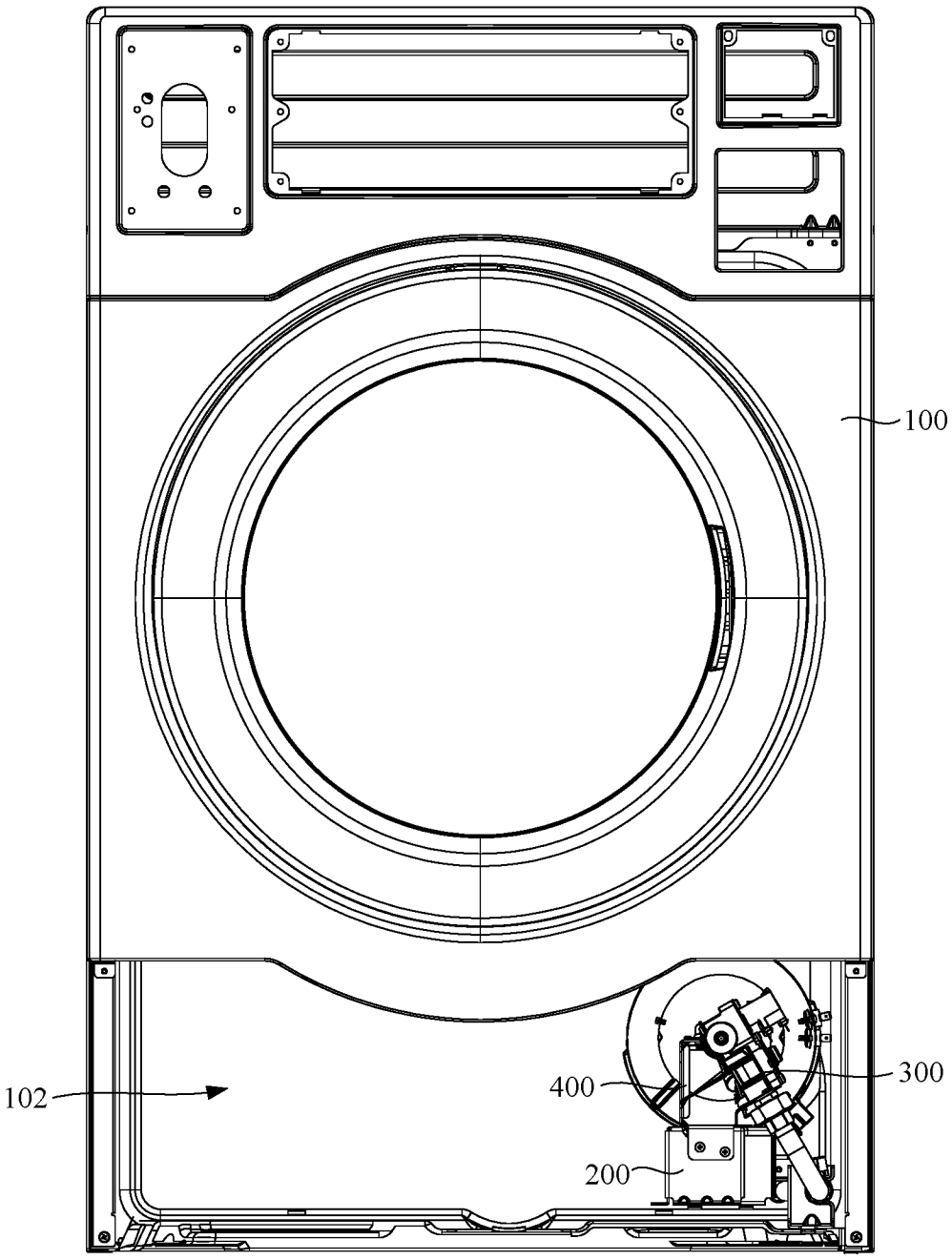

FIG. 1

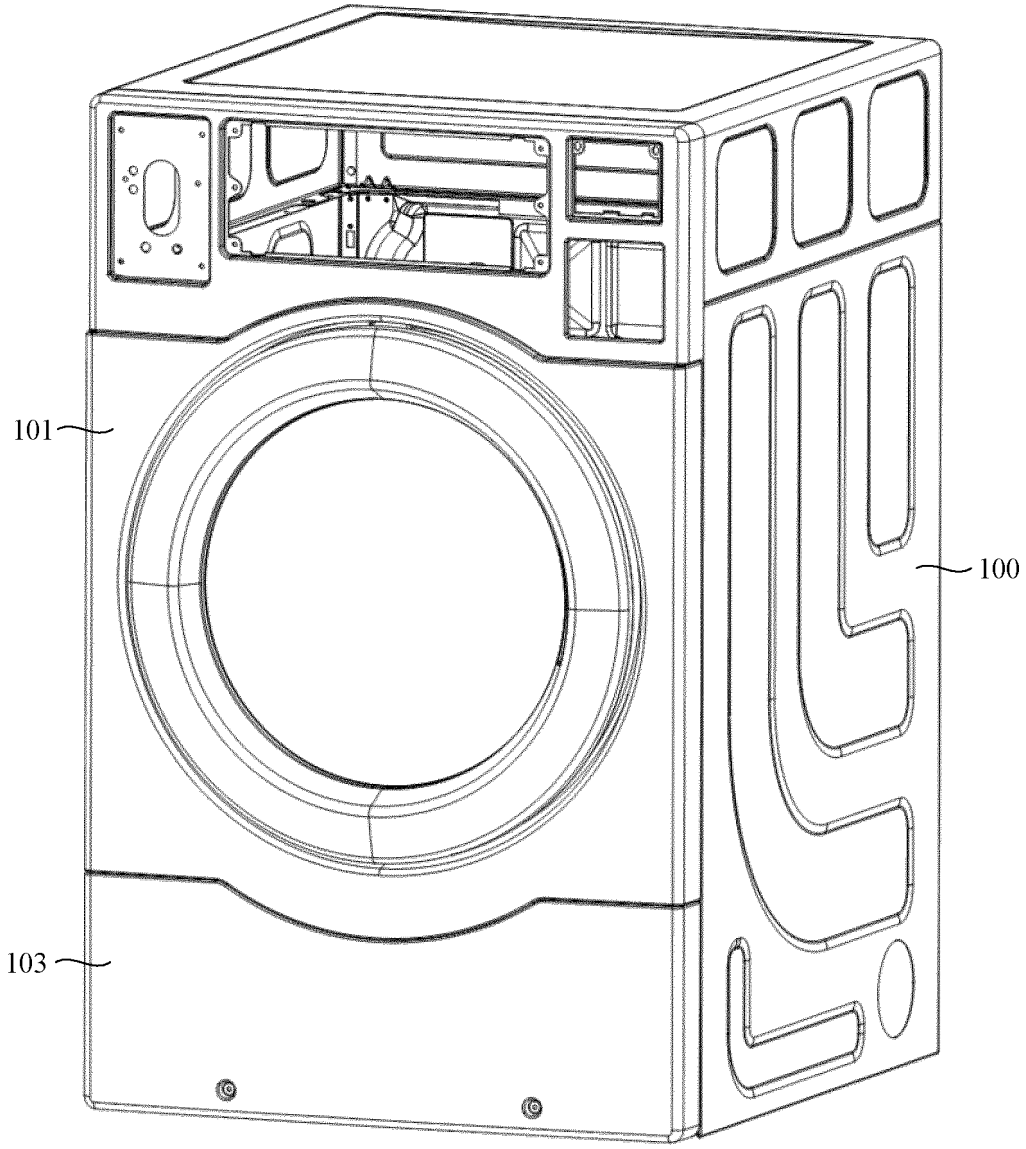

FIG. 2

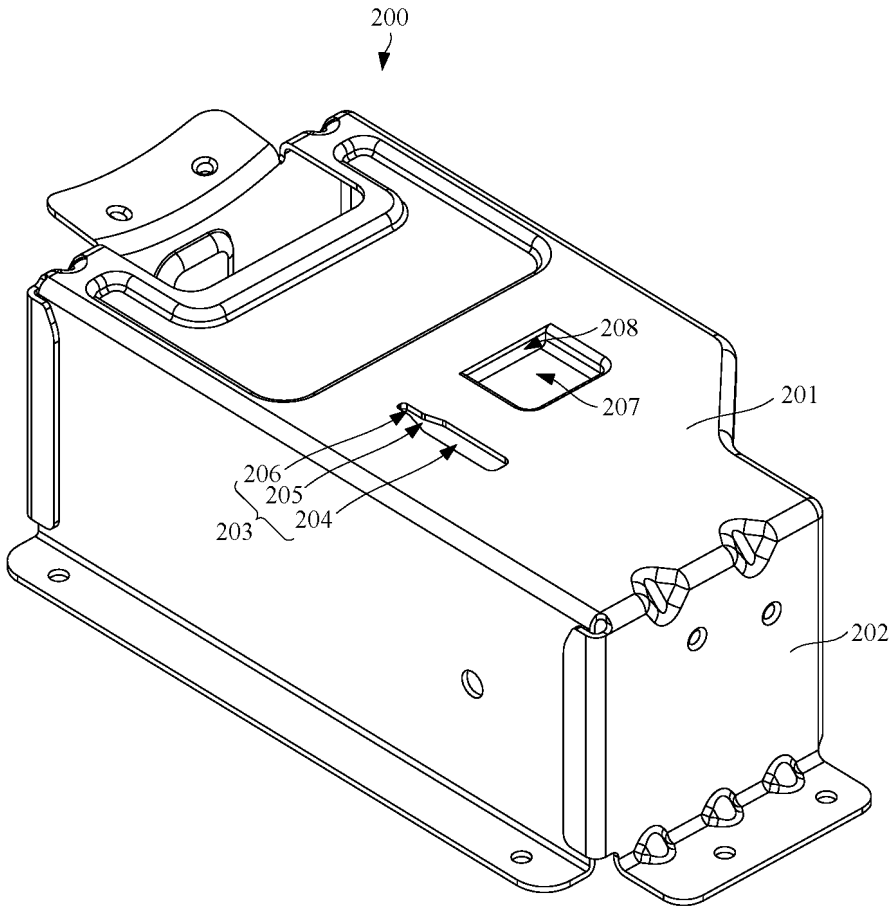

FIG. 3

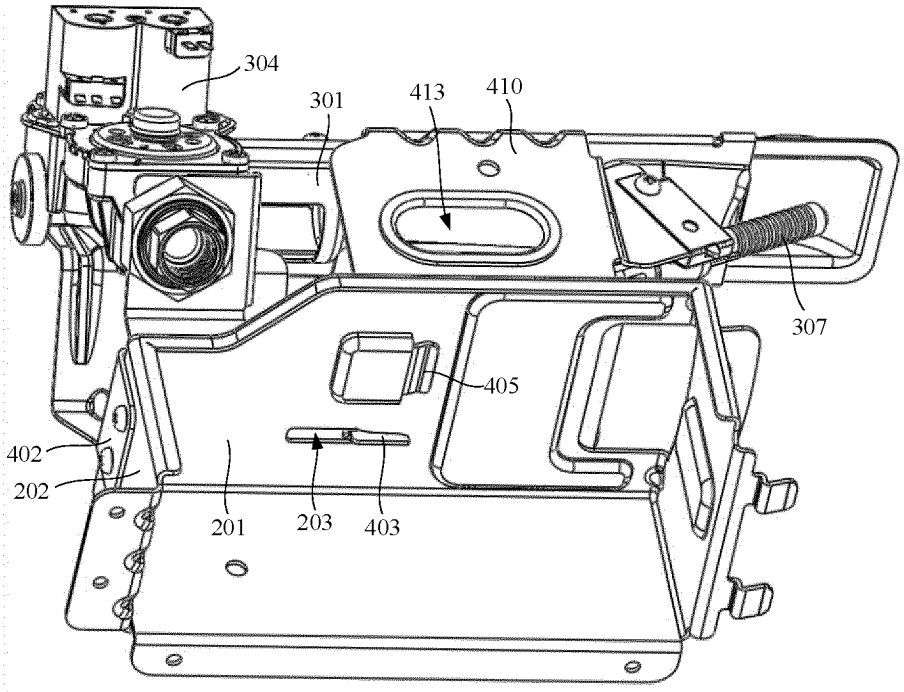

FIG. 4

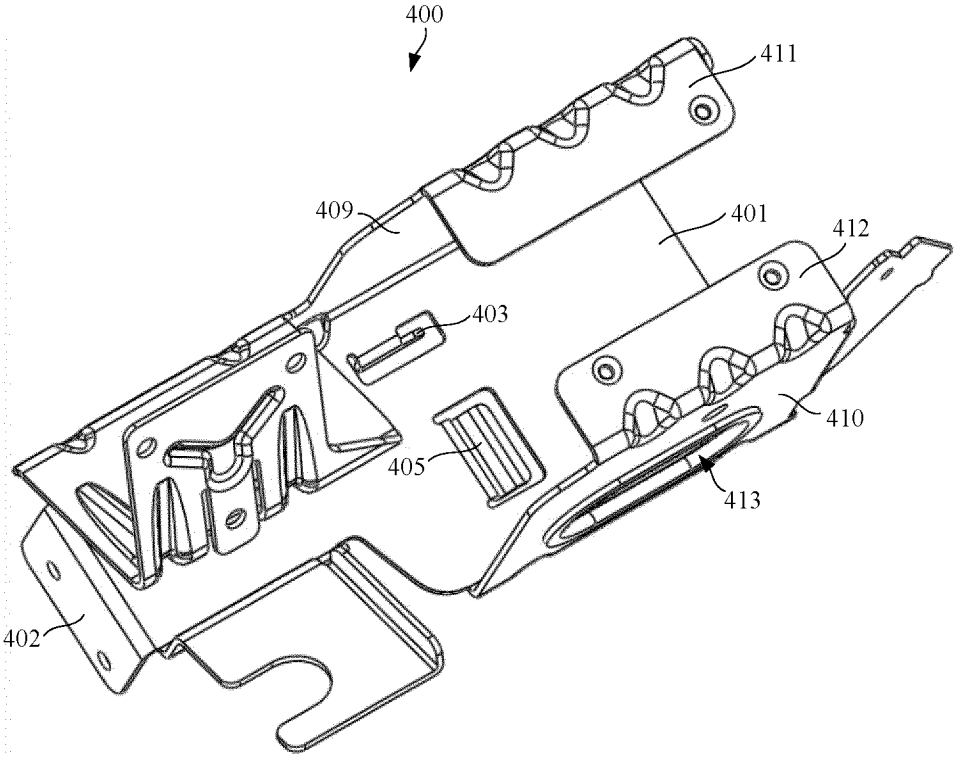

FIG. 5

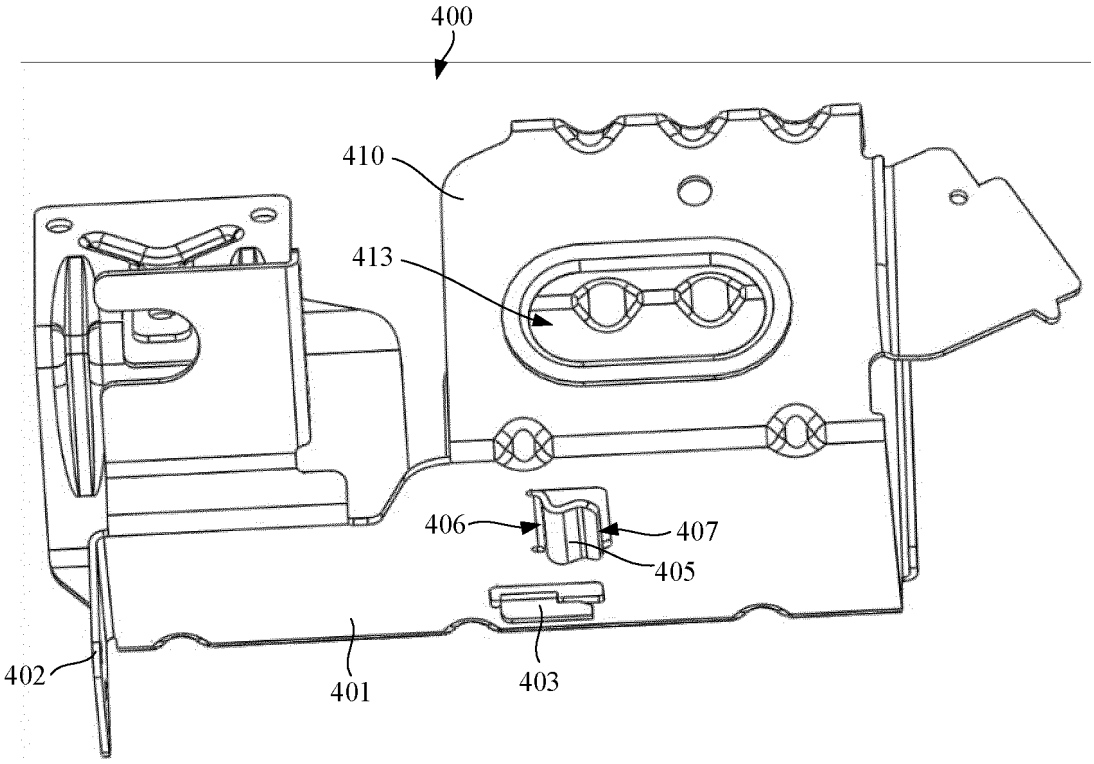
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FIG. 6

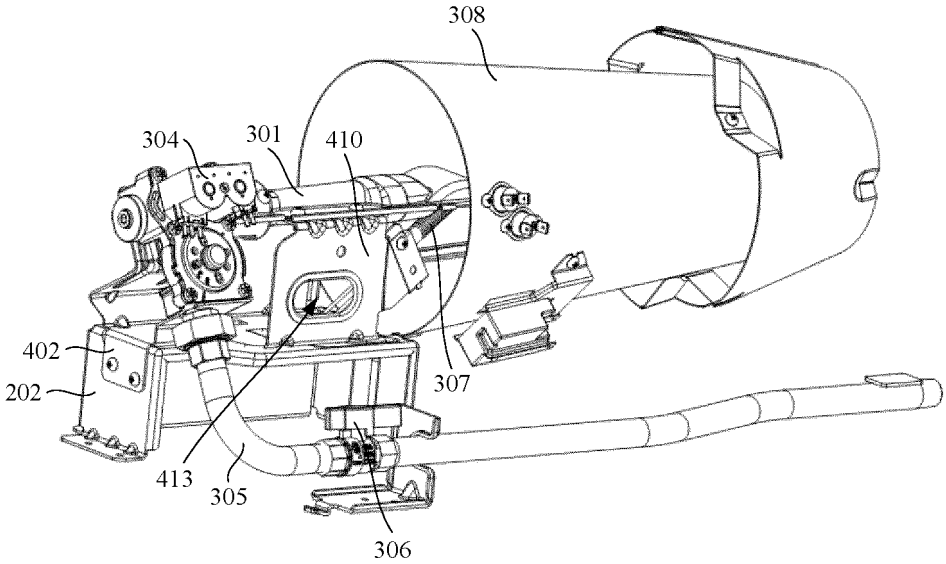
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FIG. 7

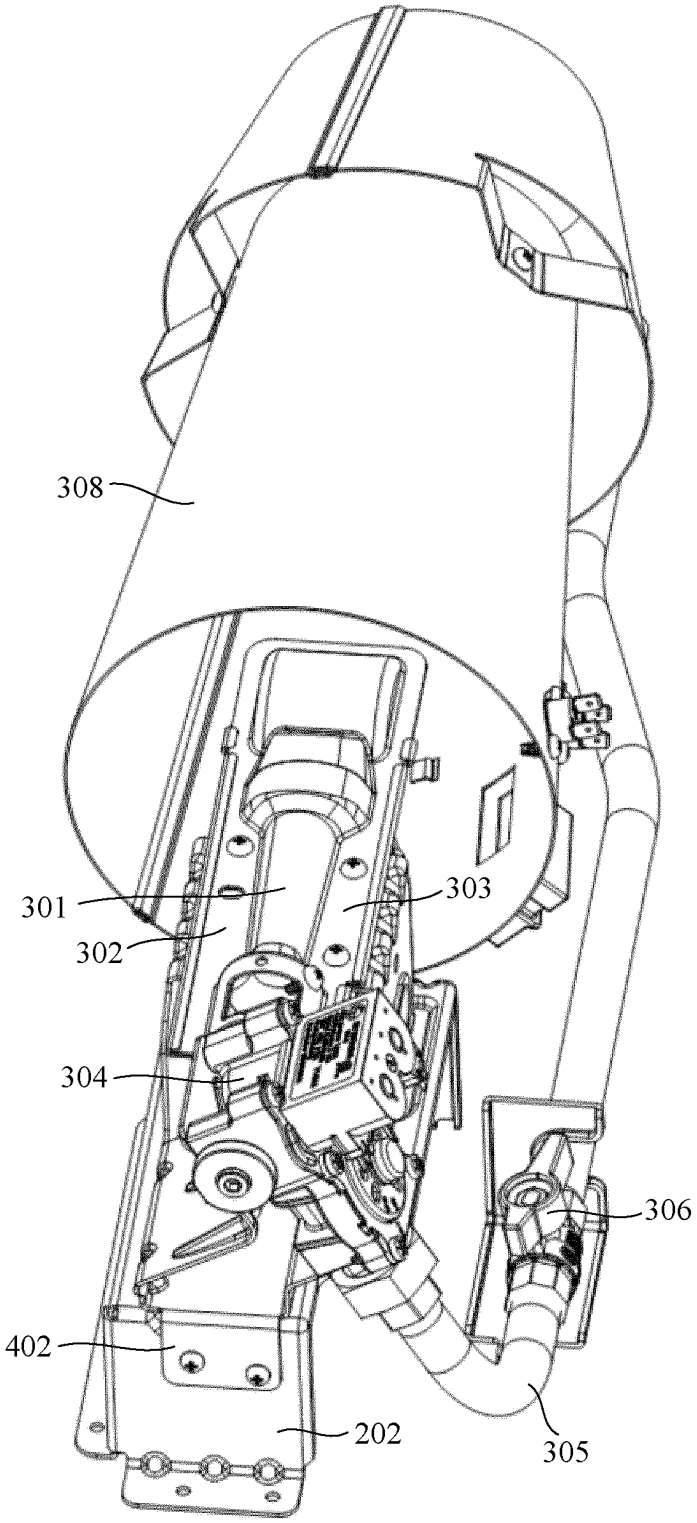

FIG. 8

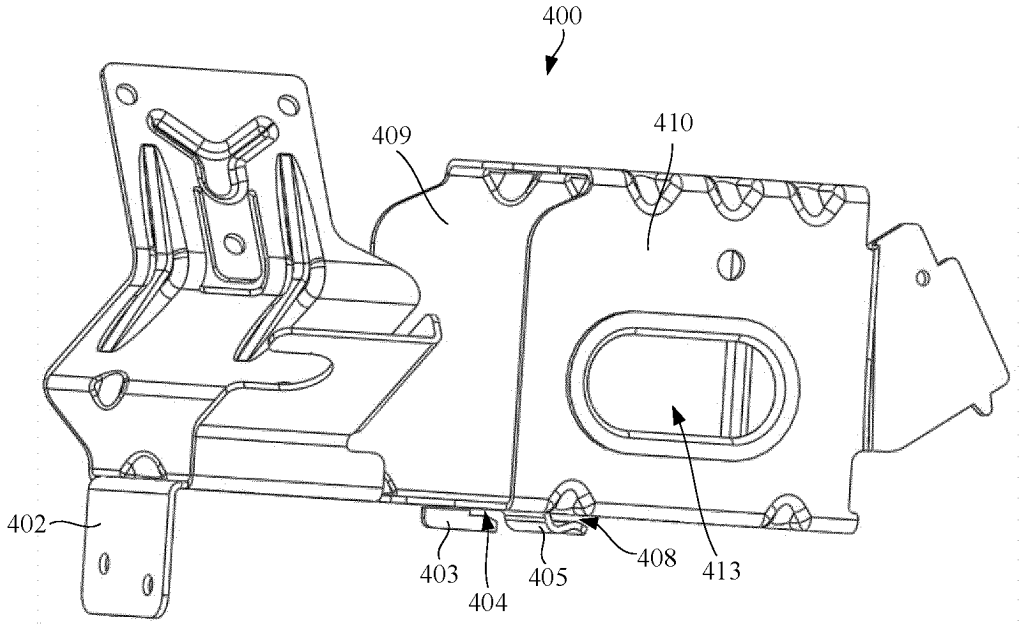

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/072693

A. CLASSIFICATION OF SUBJECT MATTER

D06F58/02(2006.01)i;D06F58/26(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC:D06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPABS; CNTXT; CNABS; SIPOABS; DWPI; CNKI: 安装座, 底座, 安装架, 支承, 支架, 支撑, 维修, 检修, 更换, 替换, 修理, 可拆卸, 干衣, 干燥, 烘干, 燃烧器, 燃气, 加热, 板, 壁, support+, rack, base, repair+, replac+, detach+, removable, demount+, disassemb+, dismount+, disassem+, hole, opening, port, maintenance, maintain+, diagnose, repair, overhaul+, access+, entrance

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN 209144528 U (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD.) 23 July 2019 (2019-07-23) description, paragraphs [0026]-[0037], and figures 1-6	1, 8
Y	US 2009044793 A1 (JOHNSON CONTROLS TECHNOLOGY COMPANY) 19 February 2009 (2009-02-19) description, paragraphs [0022]-[0033], and figures 6-8D	1, 8
PX	CN 114622392 A (QINGDAO HAIER WASHING MACHINE CO., LTD. et al.) 14 June 2022 (2022-06-14) claims 1-10	1-10
A	CN 111336517 A (WUXI LITTLE SWAN ELECTRIC CO., LTD.) 26 June 2020 (2020-06-26) entire document	1-10
A	CN 1488015 A (LG ELECTRONICS INC.) 07 April 2004 (2004-04-07) entire document	1-10

☑ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
17 April 2023	**27 April 2023**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **China No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2023/072693

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2009165323 A1 (DAEWOO ELECTRONICS CORP.) 02 July 2009 (2009-07-02) entire document	1-10
A	US 5379750 A (CARRIER CORP.) 10 January 1995 (1995-01-10) entire document	1-10

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2023/072693

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
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CN 114622392 A	14 June 2022	None	
CN 111336517 A	26 June 2020	None	
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Form PCT/ISA/210 (patent family annex) (July 2022)

REFERENCES CITED IN THE DESCRIPTION

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